December 1966

Brief 66-10660

NASA TECH BRIEF

Process Produces Accurate Registry Between Circuit Board Prints

The problem:

In production of two-sided printed circuit boards, the difficulty of obtaining precise registry between the two circuits in order to simplify component and lead mounting is appreciable. The use of coincident targets is subject to artwork shrinking or creeping and photographic distortion that often result in misregistry errors of 0.005 to 0.010 inch. Such errors complicate component assembly to the board.

The solution:

The feed-through hole locations and conductive paths are defined by mounting quick-mount circles and translucent tapes of contrasting colors on a clear transparent plastic artwork base.

How it's done:

Circuitry (including feed-through holes) that is identical on both sides of the printed circuit board is laid out on the artwork base in circles and black tape Circuitry unique to one side of the board is laid out on the artwork base in red-translucent tape and that unique to the opposite side of the board is laid out in blue-translucent tape. When the negative is shot, all photography is done from one side of the artwork. The red artwork is photographed with blue-insensitive film and the blue artwork is photographed with red-insensitive film. Any distortion is thus made common to both negatives and feed-through registry is error free.

Note:

Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
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Reference: B66-10660

Patent status:

No patent action is contemplated by NASA.

Source: The Bendix Corporation
under contract to
Langley Research Center

(Langley-288)

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RM. 3123 KSC HQS.
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